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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/760,883 | 01/17/2001 | Hiroyuki Shibata | 23.1093 | 4981 |
| 21171 | 7590 | 10/21/2005 | | |
| STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005 | | | EXAMINER KOVALICK, VINCENT E | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2677 | |

DATE MAILED: 10/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 09/760,883 | Applicant(s) SHIBATA ET AL. | |
| | Examiner Vincent E. Kovalick | Art Unit 2677 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/17/05 (Interview).
 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-7,9-11,13-16,18-20,22-24,26-29 and 31-52 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☒ Claim(s) 7,11,20,24 and 48-52 is/are allowed.
 6) ☒ Claim(s) 1,2,5,6,10,13-15,18,19,22,23,26-28,31-39 and 41-47 is/are rejected.
 7) ☒ Claim(s) 3, 9, 16, 29 and 40 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 17 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4/22/03</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This Office Action is in response to Applicant's claim limitation regarding using a continuously varied frequency clock signal to drive a display panel, as discussed with Applicant's Attorney Mr. H. J. Staas, Reg. No. 22010 at an Attorney Interview on May 17, 2005.

In light of that discussion, the USPTO Final Office Action dated January 12, 2005 is herewith withdrawn and a new Non-Final Office Action is herewith submitted.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 6, 10, 14-15, 19, 23, 27-28 and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. (USP 5,995,076) taken with Williams et al. (USP 6,397,343). in view of Kawata (USP 6,076,171).

Relative to claims 1-2, 6, 10, 14-15, 19, 23, 27-28 and 34-39, Tsuboyama et al. **teaches** a display apparatus using different types of drive waveforms alternately (col. 2, lines 46-67 and col. 3, lines 1-25); Tsuboyama et al. further **teaches** a driving method for a display apparatus (col. 5, lines 53-67 and col. 6, lines 1-3); it being understood that the driving technique taught by Tsuboyama et al. is applicable to display devices of various technologies including LCD and Plasma technology.

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Tsuboyama et al. **does not teach** said driving method wherein a frequency of a clock signal, used to drive a display panel, is continuously varied, and said display panel is driven with said frequency varying clock signal.

Tsuboyama et al. teaches a display apparatus using different types of drive waveforms alternately.

Williams et al. **teaches** a system for dynamic clock frequency adjustment for a graphics subsystem (col. 3, lines 59-67 and col. 4, lines 1-63); Williams et al. further **teaches** said driving method wherein a frequency of a clock signal, used to drive a display panel, and said display panel is driven with said frequency varying clock signal (col. 15, lines 8-15 and Abstract); It being understood that the graphics system includes a display unit.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide for the device as taught by Tsuboyama et al. the feature as taught by Williams et al. in order to adjust the clock frequency dependent on the load presented by the graphics subsystem. Tsuboyama et al. taken with Williams et al. **does not specifically teach** the clock signal being continuously varied.

Tsuboyama et al. taken with Williams et al. teaches a display apparatus using different types of drive waveforms alternately.

Kawata **teaches** an information processing system with means for varying the system clock frequency (col. 2, lines 34-67 and col. 3, lines 1-7); Kawata further **teaches** the system clock signal being continuously varied (col. 11, lines 12-16).

It would have been obvious to a person of ordinary skill in the art at the time of the invention

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to provide for the device as taught by Tsuboyama et al. taken with Williams et al. the feature as taught by Kawata in order in order to adjust the clock frequency dependent on the load presented by the graphics subsystem.

Regarding claims 2, 15 and 28 Williams et al. **teaches** the driving method for a display apparatus wherein the clock signal used to drive said display panel is a source clock signal of said display apparatus (col. 15, lines 8-15).

4. Claims 5, 13, 18, 22, 26 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata as applied to claims 1, 10, 14, 19, 23 and 27 respectively in item 3 hereinabove, and further in view of Tanaka (USP 6,130,420).

Relative to claims 5, 13, 18, 22, 26 and 31, Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** a display apparatus wherein during a quiescent period, said clock generating circuit performs a control of said clock signal used to drive said display panel.

Tsuboyama et al. taken with Williams et al. in view of Kawata teaches a display apparatus using different types of drive waveforms alternately.

Tanaka et al. **teaches** an image sensing apparatus and a method for driving said apparatus (col. 1, lines 63-67, col. 2; lines 1-67 and col. 3, lines 1-18). Tanaka et al. further **teaches** said display apparatus wherein during a quiescent period, said clock generating circuit performs control of said clock used for driving said display panel (col. 2, lines 31-67 and col. 3, lines 1-2).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata, the feature as taught by Tanaka et al. in order to permit the clock generating circuit to

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exercise control of the clock used for driving the display panel only during a quiescent period so as to not interfere with other functions being performed relative to the display panel during the non-quiescent periods.

5. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata as applied to claim 27 in item 3 hereinabove, and further in view of Nakata et al. (USP 5,206,729).

Relative to claim 32, Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** said driving method for a display apparatus wherein said driving of the display panel reduces peak values of noise emitted by the display panel.

Tsuboyama et al. taken with Williams et al. in view of Kawata teaches a display apparatus using different types of drive waveforms alternately.

Nakata et al. **teaches** an image switching apparatus for producing special video effects (col. 3, lines 41-68 and col. 4, lines 1-34); Nakata et al. further **teaches** said driving method for a display apparatus wherein said driving of the display panel reduces peak values of noise emitted by the display panel (col. 9, lines 6-11 and Fig. 5).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata the feature as taught by Nakata et al. in order to provide the means to control image flicker (col. 9, lines 3-5, Nakata et al.).

6. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata applied to claim 27 in item 3 hereinabove, and further in view of Cooper (USP 4,305,091).

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Regarding claim 33, Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** said driving method for a display apparatus wherein said driving of the display panel spreads out frequencies of noise emitted by the display panel.

Tsuboyama et al. taken with Williams et al. in view of Kawata teaches a display apparatus using different types of drive waveforms alternately.

Cooper **teaches** an electronic noise reducing apparatus and method (col. 1, lines 5-33);

Cooper further **teaches teach** said driving method for a display apparatus wherein said driving of the display panel spreads out frequencies of noise emitted by the display panel (col. 9, lines 17-35).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata the feature as taught by Cooper in order to minimize the noise emitted by the display panel.

7. Claims 41, 42, 43, 44, 45, 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata as applied to claims 10, 19, 23, 34, 35 and 38, respectively (with both claims 43 and 47 being applied to claim 23) in item 3 hereinabove, and further in view of Jagdt (DE 4112672A1).

Regarding claims 41-47, Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** a display apparatus wherein the clock signal time switched between said at least two frequencies in accordance with the time conditions is periodically time switched between said at least two frequencies to reduce the peak nose output of the dipay panel

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Tsuboyama et al. taken with Williams et al. in view of Kawata teaches a display apparatus using different types of drive waveforms alternately.

Jugdt **teaches** a display apparatus wherein the clock signal time switched between said at least two frequencies in accordance with the time conditions is periodically time switched between said at least two frequencies to reduce the peak noise output of the display panel (Abstract).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata the feature as taught by Jagdt in order to reduce the noise output of the display panel.

Allowable Subject Matter

8. Claims 3, 9, 16, 29 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claims 3, 16 and 29, the major difference between the teachings of the prior art of record (USP 6,037,917, Kawakami and USP 6,130,420, Tanaka et al.) and that of the instant invention is that said prior art of record **does not teach** the driving method for a plasma display apparatus wherein the frequency of the clock signal used to drive a display panel continuously varies within a range of plus or minus 1 percent of a reference frequency.

Regarding claim 9, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** the said driving method for a plasma display apparatus wherein a control of said clock signal

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used to drive said display panel is performed during a quiescent period.

Relative to claim 40, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** the said driving method for a plasma display apparatus wherein the switching of the clock signal between the at least two frequencies in accordance with the time conditions comprises periodically switching the clock signal to reduce the peak noise output of the display.

9. Claims 7, 11, 20, 24, and 48-52 are allowed.

10. The following is an examiner's statement of reasons for allowance:

Relative to claims 7, 11, 20, 24 and 48-52 the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** a driving method for a plasma display apparatus having a display panel, wherein a peak noise output of the display panel is reduced by sequentially switching a clock signal, used to drive the display panel, between at least two frequencies, said two frequencies lying within plus or minus 1 percent of a reference frequency being set for said clock signal used to drive said display panel.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

| | | |
|------------------|-----------|-----------------|
| U. S. Patent No. | 5,917,461 | Sakami et al. |
| U. S. Patent No. | 5,748,165 | Kubota et al. |
| U. S. Patent No. | 3,889,225 | McKenzie et al. |


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To Respond

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E. Kovalick whose telephone number is 571-272-7669. The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Vincent E. Kovalick
October 13, 2005

AMR A. AWAD
PRIMARY EXAMINER
